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Docket Number FAA-1999-5401-A
400 Seventh St. N.W.
Room Plaza 401
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Reference: Notice 99-02, Aging Airplane Safety

Gentlemen:

In response to the Federal Register Notice of April 2, 1999, Volume 64, Number 63 regarding the NPRM on Aging Airplane Safety the Aerospace Industries Association offers the following comments regarding the proposed rule.

The objective of the proposed rule is to ensure the continuing airworthiness of aging airplanes operating in air transportation by (1) applying modern damage tolerance analysis and inspection techniques to older airplane structures that were certificated before such techniques were available, and (2) by mandating aging airplane records reviews and inspections be performed by the FAA. The proposal states that the rule would apply to all airplanes operated under part 121,129 and 135. However, with regard to item (1) above, the proposal's emphasis appears to be focused on commuter and small transport airplanes included in appendices accompanying the proposal. The "Section by Section Analysis" discussion, specifically 121.370a and appendix N, indicates that the proposed rule's intent is to ensure that damage tolerance based inspection programs are included in maintenance programs for airplanes listed in the appendix. Further, the "Compliance Assistance" section of the proposal indicates that the FAA is willing to assist affected parties by developing a generic damage tolerance methodology applicable to the entire commuter fleet.

With all that the above implies however, proposed new FAR Part 121.370a, paragraph (a), could be misinterpreted to apply equally to large transport category airplanes. Paragraph (a) reads as follows: "Except as otherwise provided in this section, no certificate holder may operate an airplane under this part after [4 years after the effective date of the rule] unless the maintenance program for that airplane includes damage-tolerance-based inspections and procedures." Please note that paragraph (a) differs significantly from paragraphs (b)(l) and (b)(2) of the same proposed FAR part,

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inasmuch as the latter paragraphs reference an appendix listing of specific airplanes which would be affected by the rule. Paragraph (b) reads as follows:

"(b) A certificate holder may operate an airplane listed in appendix M to this part as follows:

(1) If the time in service of the airplane reaches the design-life goal listed in appendix M to this part before [4 years after the effective date of the rule], the certificate holder may operate that airplane until [4 years after the effective date of the rule]; after that date, the airplane may not be operated unless the maintenance program for that airplane includes damage-tolerance-based inspections and procedures.

(2) If the time in service of the airplane reaches the design-life goal listed in appendix M to this part on or after [4 years after the effective date of the rule], the certificate holder may operate that airplane until the date the airplane's time in service reaches the design-life goal or until December 20, 2010, whichever occurs sooner."

In order to eliminate any confusion as to the intent of proposed FAR Part 121.370a, paragraph (a), it is recommended that it be revised to read as follows:

"Except as otherwise provided in this section, no certificate holder may operate an airplane listed in appendix *M* under this part after [4 years after the effective date of the rule] unless the maintenance program for that airplane includes damage-tolerance-based inspections and procedures."

Another important point regarding this distinction or limitation is that formal Aging Airplane programs have been established for large transport category airplanes under the auspices of the Aviation Rulemaking Advisory Committee's Transport Aircraft and Engines Issues Group. Extensive industry actions were initiated in 1988 to address aging fleet airworthiness concerns of large transport category airplanes. It is widely acknowledged that model specific Structures Working Groups (SWG) have demonstrated a cooperative determination over the last decade to make the right things happen throughout the industry.

These activities include:

- Mandatory structural modifications to lessen dependence on structural inspections alone.
- Development of Corrosion Prevention and Control Programs (CPCP).
- Consolidation of maintenance program guidelines for aging airplanes.
- Updates of supplemental fatigue inspection programs with less dependence on single load path cracking for damage detection.

Development of new inspection requirements to address widespread fatigue damage (WFD) concerns.
- Development of structural Repair Assessment Programs (to be mandated by FAR change in the near future).

These activities have resulted in major maintenance requirements for large transport category airplanes approaching their original design service objectives. The requirements are already included in operator maintenance programs or will be as specified by the program documentation mandated by either Airworthiness Directive, inclusion in airworthiness limitation sections of manufacturer maintenance programs or by new rules. Proposed FAR Part 121.370a implementation requirements pertaining to inclusion of damage tolerance inspections and procedures in the operator's maintenance programs for large transport category airplanes would be arbitrary and contrary to all the work conducted, or in work, by SWGs to define program implementation requirements from a scheduling perspective. Since the Aging Airplane programs apply to large transport airplanes used in any operating category, the same concerns relating to proposed FAR Part 121.370a, paragraph (a), apply equally to proposed FAR Part 129.16, paragraph (a).

In a similar manner, and with particular reference to item (2) above, mandatory aging airplane record reviews as proposed evoke unique concerns insofar as operators of large transport category airplanes may need to manage a duplicate set of records, and conduct inspections and modifications at thresholds and intervals that are out of sequence with existing mandatory Aging Airplane program requirements and existing FAA approved maintenance programs. The concern about records duplication arises not so much from the addition of a newly proposed FAR Part 121.368, "Aging Airplane Records Review and Inspection", which establishes a requirement for a records review and airplane inspection by the FAA, but from the specificity (or lack thereof) that is included in the proposal regarding which records are necessary. In general , proposed FAR Part 121.368 duplicates existing FAR Part 121.380 in terms of maintenance recording requirements and the availability of such records for FAA review. However, when comparing record requirements of the two FAR parts, obvious differences exist. For example, large transport category airplane damage tolerance inspections have been mandated by airworthiness directives and by inclusion in airworthiness limitation sections of manufacturer maintenance programs. Existing FAR Part 121.380 requires an operator to status and specify method of compliance with the damage tolerance requirements in accordance with either subparagraph (v) or (vi), approved maintenance inspection program or airworthiness directives, respectively.

Proposed FAR Part 121.368 contains an inaccurracy insofar as it stipulates that records pertaining to damage tolerance inspections have been mandated solely by airworthiness directive. This same inaccuracy applies to the separate listing of the CPCP in proposed FAR Part 121.368. When comparing the two FAR parts it should be noted that FAR Part 121.380 is more comprehensive than proposed FAR Part 121.368 especially with regard to airworthiness directives. Existing FAR Part 121.380 requires "the current status of airworthiness directives, including the date and methods of compliance, and, if the airworthiness directive involves recurring action, the time and date when the next action is required". As written, proposed FAR Part 121.368 could be interpreted as requiring current status and method of compliance for damage tolerance and CPCP inspection airworthiness directives only. Since most operators of large transport airplanes have evolved elaborate maintenance recordkeeping systems based on the requirements of FAR Part 121.380, it is recommended that proposed 121.368, paragraph (d), be revised to state " . . together with the following records or those ***specified in Part*** 121.380."

During development of the Aging Airplane programs significant attention was directed at specifying implementation periods, thresholds and repeat intervals necessary for continued safe operation of affected large transport category airplanes. Not surprisingly, criteria included either hours, cycles or calendar time for the various segments of the program. Generally, the criteria does not coincide with the manufacturer's basic maintenance program that specify thresholds or intervals for heavy maintenance visits. Operators reconcile differences by pre-implementing and by reducing intervals so that they can accommodate the new requirements into their approved maintenance program. This is done because the basic maintenance program is much larger than any new addition including Aging Airplane program requirements. Operators are also permitted by the FAA to escalate intervals between inspections based on demonstrated capability from a maintenance performance perspective.
Given the above considerations it is recommended that the five year limit for repeat interval inspections by the FAA, as contained in FAR Part 121.368, be limited to airplanes specified in the appendix. For large transport category airplanes the inspection interval should correspond to the HMV schedule in the approved maintenance program that offers access to the greatest amount of structure.

We trust that our comments will be addressed during the FAA review and suitable language incorporated into the eventual rule.

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